

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKUO WATANABE, YASUHITO NARUSE
and KOTARO YAMASUE

Appeal No. 95-3865
Application 07/714,568¹

HEARD: November 13, 1997

Before GARRIS, PAK and WALTZ, ***Administrative Patent Judges.***

WALTZ, ***Administrative Patent Judge.***

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's final rejection dated Nov. 2, 1993. The final rejection involved claims 1-8, 10 and 12-23. Subsequent to the final rejection, appellants submitted two amendments. The amendment dated Feb. 2, 1994 (Paper No. 10) was denied entry by the examiner in the Advisory Action dated Feb. 14, 1994 (Paper No. 11). The

¹ Application for patent filed June 13, 1991.

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amendment dated Feb. 24, 1994 (Paper No. 13), was entered by the examiner as noted in the Advisory Action dated March 18, 1994 (Paper No. 14). Therefore, the claims on appeal are claims 6-8, 12-20, 22, 26 and 27, which are the only claims remaining in this application.

According to appellants, the invention is directed to a presensitized plate useful in lithographic printing which comprises a roughened and anodized aluminum support covered by a positive working light-sensitive layer wherein the dye concentration is lower in the portion of the layer adjacent to or near the substrate than in the other portions of the light-sensitive layer (brief, pages 2-3). As noted by appellants, the use of these plates can significantly diminish color stain and contamination during printing, without sacrificing printing durability (brief, page 4).

Independent claims 26 and 27 are illustrative of the subject matter on appeal and are attached as an appendix to this decision.

The following references have been relied upon by the examiner as evidence of obviousness:

Nishioka et al. (Nishioka)	4,497,888	Feb. 5, 1985
Uehara et al. (Uehara)	4,536,465	Aug. 20, 1985

sulfonyl chloride with a polyhydroxy compound, an alkali-soluble resin and a dye. The dye concentration in the light-sensitive layer adjacent to or near the support is lower than that in the other light-sensitive layer since the first layer is obtained by coating the support with the photosensitive solution (the ester, resin and a solvent) being free of a dye while the second layer is obtained by coating with a photosensitive solution of the ester, resin, dye and a solvent (see claim 26, last 11 lines).

Jain discloses a multi-level positive working photoresist composition comprising a first layer of an alkali-soluble resin, an o-quinonediazide compound, and a crosslinker in a solvent, with the second layer comprising a resin and the o-quinonediazide compound (column 4, line 11-column 5, line 25). Jain requires that the first photosensitive composition and the second photosensitive composition are reactive to ultraviolet radiation at substantially different wavelengths (column 3, lines 21-23, column 4, lines 20-21, and column 5, lines 22-25). A dye may be added to either layer (column 3, lines 15-16 and 25-27). Jain discloses that these photoresists will be subjected to etchants and are the choice for the manufacture of densely packed integrated circuits (column 1, lines 35-46, and column 2, lines 14-15).

The examiner states that Examples 1-3 of Jain disclose the same two-layer coating compositions as present in the appealed claims (answer, page 5). The examiner recognizes that Jain is deficient in failing to disclose or teach a roughened and anodized aluminum substrate (answer, page 7), failing to disclose the 1,2-naphthoquinone diazide 5-sulfonyl ester in both light sensitive layers (answer, page 6), and the seemingly contradictory disclosure of using dyes in the first (closest to the substrate) layer while exemplifying dyes only in the second layer (Examples 1-3, see the answer, page 12).

Regarding the failure of Jain to disclose the roughened and anodized aluminum substrate of the claimed plate, the examiner states that Jain teaches the use of an aluminum support even though all the examples are directed to silicon supports (see Jain, column 18, line 57-column 19, line 9, and the answer, page 5). The examiner further concludes that use of a roughened and anodized aluminum support would have been obvious since Uehara and Nishioka teach the benefits of using such a support with photosensitive compositions in the manufacture of lithographic printing plates, integrated circuits or a photomask (answer, pages 7-9).

It is well established that before a conclusion of obviousness may be made based on a combination of references, there must have been a reason, suggestion or motivation to lead an inventor to combine those references. See *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629 (Fed. Cir. 1996). Uehara teaches that photosensitive **compositions** similar to those of the appealed claims (i.e., a o-quinonediazide, a resin and a dye) have been used in production of lithographic printing plates and photoresists (column 1, lines 16-20). Nishioka teaches that "photo-solubilizable **compositions** comprising an o-quinonediazide compound and a novolak resin ...have been widely used industrially for producing lithographic printing plates or photoresists" (column 1, lines 15-20, emphasis added). Neither reference suggests that the roughened and anodized plate used in lithographic printing plates can be used with photoresists but only refers to the compositions that may be useful in either lithographic printing plates or photoresists.

The examiner concludes that, based upon Uehara, the art of lithographic printing plates and photoresist elements for making integrated circuits are sufficiently analogous to one another and interchangeable that the same chemical ingredients may be used in those layers (answer, paragraph bridging pages 10-11).

Regardless of the "interchangeable" chemical ingredients, there is no suggestion in the secondary references that the plates used in lithographic printing can be used as a photoresist support.

The examiner notes that the second deficiency in Jain is that Examples 1-3 do not disclose the 1,2-naphthoquinone-2-diazide-5-sulfonyl ester in both light sensitive layers. These examples disclose the 4-sulfonyl ester in the bottom layer and the 5-sulfonyl ester in the top layer. The examiner refers to column 19, line 65-column 20, line 2, of Jain for the teaching that the top layer may comprise a 4- or 5-sulfonyl ester (answer, page 6) and thus concludes that "interchanging any of the 4 isomers with the 5 isomers would be conventional and known in the art ... with a reasonable expectation of same or similar results" (answer, page 7).

However, Jain specifically teaches that "the position of the sulfonyl group is important" (column 9, line 66-column 10, line 12) in the 1,2-quinonediazide sulfonyl ester reactant for the *first* (i.e., the bottom layer) photosensitive composition. Jain teaches the importance of this bottom layer having the sulfonyl group in the 4 position (column 10, lines 5-6). The teaching referred to by the examiner at column 19, line 65, of Jain, concerns the use of the 4 or 5 sulfonyl esters in the second or

top layer. The Examples support this teaching as all of the examples have the 4 isomer in the bottom layer³ and the 5 isomer in the top layer. Therefore, Jain teaches away from the claimed plate with the 5-sulfonyl ester in both layers.

For the foregoing reasons, we conclude that the examiner has not established a ***prima facie*** case of obviousness based on the Jain, Uehara and Nishioka references. Because we reverse on the basis of failure to establish a ***prima facie*** case of obviousness, we need not reach the issue of the sufficiency of the showing of unexpected results (i.e., Table 1 on page 22 of the specification). ***In re Geiger***, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987). Accordingly, the rejection of claims 6-8,

³ It is noted that Example 7 contains a mixture of the 4 and 5 isomers in the bottom layer, with the 5 isomer in the top layer.

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12-20, 22, 26 and 27 under 35 U.S.C. § 103 as unpatentable over
Jain in view of Uehara and Nishioka is reversed.

REVERSED

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BRADLEY R. GARRIS)	
Administrative Patent Judge)	
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CHUNG K. PAK)	
Administrative Patent Judge)	APPEALS AND
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APPENDIX

26. A presensitized plate which comprises a roughened and anodized aluminum support having provided thereon two positive working light-sensitive layers, one of which layers being a light-sensitive layer adjacent to or near the support and comprising an ester obtained by reacting 1,2-naphthoquinone-2-diazide-5-sulfonyl chloride with a polyhydroxy compound and an alkali-soluble resin that becomes soluble in a developer upon exposure to light and the other light-sensitive layer comprising an ester obtained by reacting 1,2-naphthoquinone-2-diazide-5-sulfonyl chloride with a polyhydroxy compound, an alkali-soluble resin and a dye that becomes soluble in a developer upon exposure to light, wherein a dye concentration in the light-sensitive layer adjacent to or near the support is lower than that in the other light sensitive-layer, and said two light-sensitive layers are obtained by (i) coating on the support a first photosensitive solution being free of a dye and containing the ester obtained by reacting 1,2-naphthoquinone-2-diazide-5-sulfonyl chloride with a polyhydroxy compound, the alkali-soluble resin and a solvent to form the light-sensitive layer adjacent to or near the support, (ii) then coating a second photo-sensitive solution including the ester obtained by reacting 1,2-naphthoquinone-2-diazide-5-sulfonyl chloride with a polyhydroxy compound, the alkali-soluble resin, the dye and a solvent to form the other light-sensitive layer, and (iii) then drying the light-sensitive layers thereby forming the two positive working light-sensitive layers.

27. A presensitized plate which comprises an aluminum support, a surface of which is grained and anodized, and two positive working light-sensitive layers on said surface, one of which layers being a light-sensitive layer adjacent to or near the support and comprising an o-naphthoquinone diazide compound and an alkali-soluble resin that becomes soluble in a developer upon exposure to light and the other light-sensitive layer comprising an o-naphthoquinone diazide compound, an alkali-soluble resin and a dye that becomes soluble in a developer upon exposure to light, wherein the o-naphthoquinone diazide compound contained in the two light-sensitive layers are identical, a dye

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concentration in the light-sensitive layer adjacent to or near the support is lower than that in the other light-sensitive layer, and said two light-sensitive layers are obtained by (i) coating on the support a first photo-sensitive solution being free of a dye and containing the o-naphthoquinone diazide compound, the alkali-soluble resin and a solvent to form the light-sensitive layer adjacent to or near the support, (ii) then coating a second photo-sensitive solution including the o-naphthoquinone diazide compound, the alkali-soluble resin, the dye and a solvent to form the other light-sensitive layer, and (iii) then drying the light-sensitive layers thereby forming the two positive working light-sensitive layers.